SANTA CRUZ BIOTECHNOLOGY, INC.

Ksr-1 siRNA (h): sc-35762

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The Power to Question

BACKGROUND

Several serine/threonine protein kinases have been implicated as intermediates in signal transduction pathways. These include ERK/MAP kinases, ribosomal S6 kinase (Rsk) and Raf-1. Raf-1 has intrinsic kinase activity towards serine/threonine residues and is widely expressed in many tissue types and cell lines. Raf-1 activation is dependent on the small molecular weight GTPase Ras, but the means by which this activation occurs is poorly understood. Two proteins putatively involved in this process are Ksr-1 and Tak1. Ksr-1 (kinase suppressor of Ras) is a novel Raf-related protein kinase whose function is required for Ras signal transduction. Whether Ksr-1 lies directly downstream of Ras or acts in a parallel pathway is not yet known. Tak1 (TGFβ-activated kinase) has been shown to participate in the activation of the MAP kinase family in response to TGFβ stimulation.

REFERENCES

1. Huleihel, M., et al. 1986. Characterization of murine A-Raf, a new oncogene related to the v-Raf oncogene. Mol. Cell. Biol. 6: 2655-2662.
2. Ray, L.B., et al. 1988. Insulin-stimulated microtubule-associated protein kinase is phosphorylated on tyrosine and threonine *in vivo*. Proc. Natl. Acad. Sci. USA 85: 3753-3757.

CHROMOSOMAL LOCATION

Genetic locus: KSR1 (human) mapping to 17q11.1.

PRODUCT

Ksr-1 siRNA (h) is a pool of 2 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Ksr-1 shRNA Plasmid (h): sc-35762-SH and Ksr-1 shRNA (h) Lentiviral Particles: sc-35762-V as alternate gene silencing products.

For independent verification of Ksr-1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35762A and sc-35762B.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Ksr-1 siRNA (h) is recommended for the inhibition of Ksr-1 expression in human cells.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Ksr-1 (E-5): sc-515924 is recommended as a control antibody for monitoring of Ksr-1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Ksr-1 gene expression knockdown using RT-PCR Primer: Ksr-1 (h)-PR: sc-35762-PR (20 µl, 501 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fernandez, I.F., et al. 2010. VRK2 inhibits mitogen-activated protein kinase signaling and inversely correlates with ErbB-2 in human breast cancer. Mol. Cell. Biol. 30: 4687-4697.
2. Fernández, I.F., et al. 2012. VRK2 anchors KSR1-MEK1 to endoplasmic reticulum forming a macromolecular complex that compartmentalizes MAPK signaling. Cell. Mol. Life Sci. 69: 3881-3893.
3. Li, B., et al. 2013. Terbinafine inhibits Ksr-1 and suppresses Raf-MEK-ERK signaling in oral squamous cell carcinoma cells. Neoplasma 60: 406-412.
4. Lee, J., et al. 2015. Ksr-1 is coordinately regulated with Notch signaling and oxidative phosphorylation in thyroid cancer. J. Mol. Endocrinol. 54: 115-124.
5. Martín-Vega, A., et al. 2023. Scaffold coupling: ERK activation by *trans*-phosphorylation across different scaffold protein species. Sci. Adv. 9: eadd7969.
6. de la Fuente-Vivas, D., et al. 2025. ERK1/2 mitogen-activated protein kinase dimerization is essential for the regulation of cell motility. Mol. Oncol. 19: 452-473.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.